

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

**PCT**

NOTIFICATION CONCERNING  
TRANSMITTAL OF COPY OF INTERNATIONAL  
APPLICATION AS PUBLISHED OR REPUBLISHED

To:

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Date of mailing (day/month/year)  
29 September 2005 (29.09.2005)

Applicant's or agent's file reference  
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**IMPORTANT NOTICE**

International application No. PCT/US2004/030787	International filing date (day/month/year) 17 September 2004 (17.09.2004)	Priority date (day/month/year) 18 September 2003 (18.09.2003)
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Applicant  
CARDIAC PACEMAKERS, INC.

The International Bureau transmits herewith the following documents:

copy of the international application as published by the International Bureau on under  
No. WO

copy of international application as republished by the International Bureau on 29 September 2005 (29.09.2005) under  
No. WO 2005/028029  
For an explanation as to the reason for this republication of the international application, reference is made to INID codes (15), (48) or (88) (*as the case may be*) on the front page of the attached document.

**HOLLINGSWORTH & FUNK, LLC**

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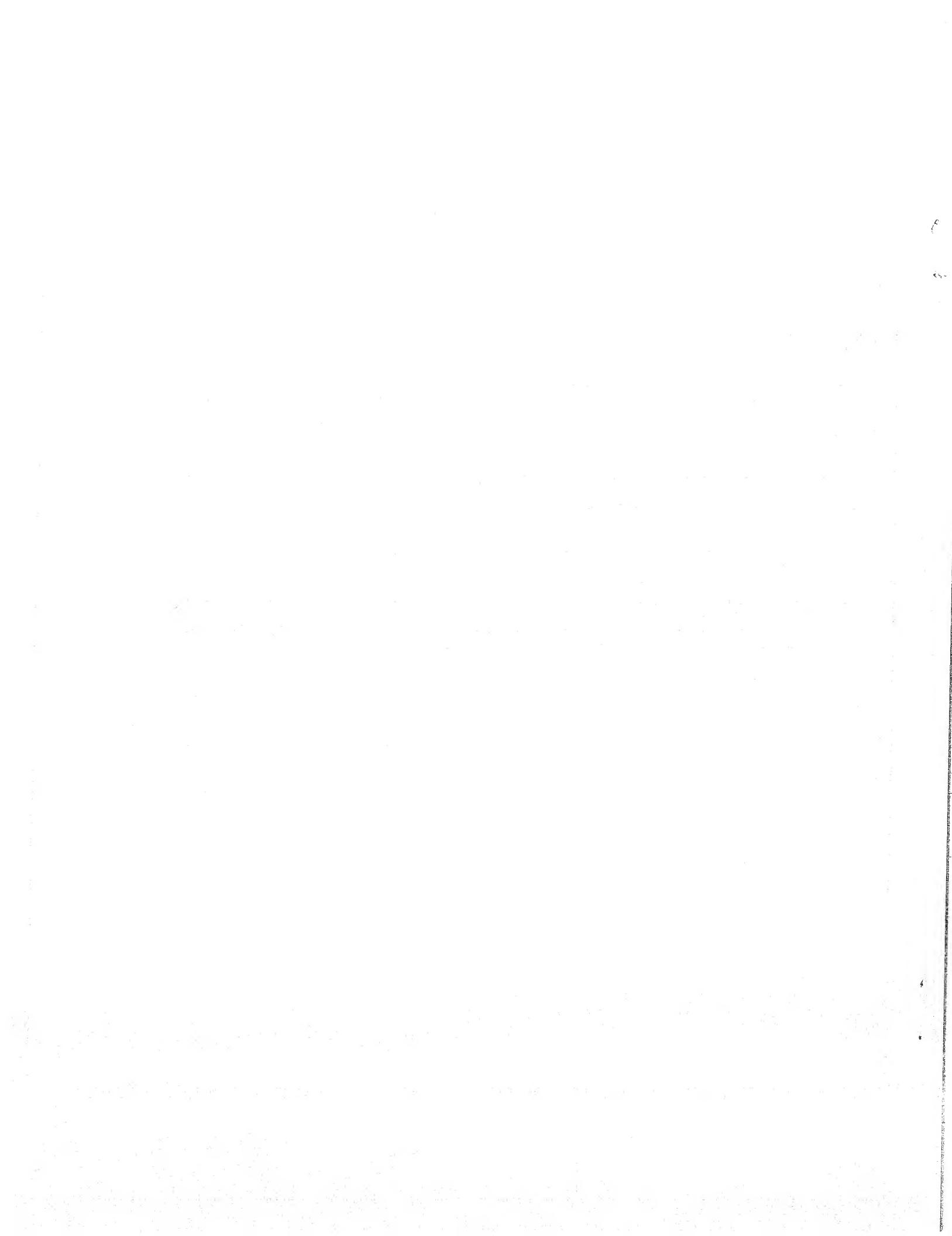
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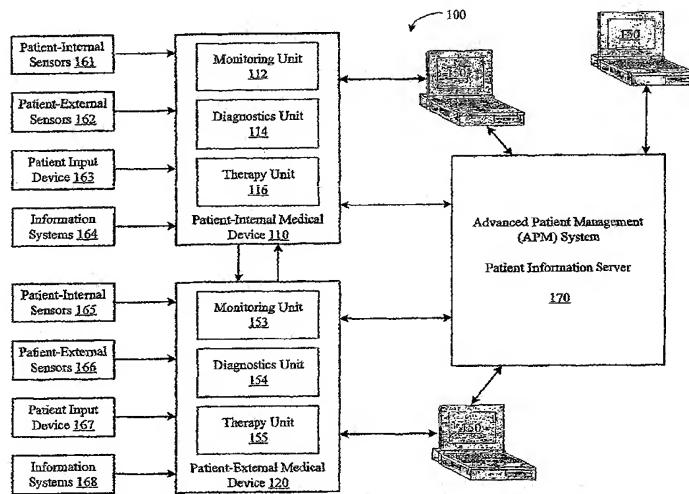
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60/504,229	18 September 2003 (18.09.2003)	US	(71) Applicant (for all designated States except US): CAR-	
10/798,794	11 March 2004 (11.03.2004)	US	DIAC PACEMAKERS, INC. [US/US]; 4100 Hamline	
10/824,941	15 April 2004 (15.04.2004)	US	Avenue North, St. Paul, MN 55112 (US).	
10/824,776	15 April 2004 (15.04.2004)	US	(72) Inventors: STAHHMANN, Jeffrey, E.; 4850 154th Lane	
10/864,287	9 June 2004 (09.06.2004)	US	N.W., Ramsey, MN 55303 (US). LEE, Kent; 176 Christen-	
10/920,569	17 August 2004 (17.08.2004)	US	son Court, Fridley, MN 55432 (US). HARTLEY, Jesse,	
10/920,675	17 August 2004 (17.08.2004)	US	W.; 339 Linda Court, Lino Lakes, MN 55014 (US). NI,	
10/920,568	17 August 2004 (17.08.2004)	US	Quan; 5812 Prairie Ridge Drive, Shoreview, MN 55126	
10/922,351	19 August 2004 (19.08.2004)	US	(US). HATLESTAD, John, D.; 2044 Edgerton Street,	
10/922,663	20 August 2004 (20.08.2004)	US	Maplewood, MN 55117 (US). ZHU, Qingsheng; 3025	
10/929,826	30 August 2004 (30.08.2004)	US	Valento Lane, Little Canada, MN 55117 (US). SIEJKO,	
10/929,830	30 August 2004 (30.08.2004)	US		

{Continued on next page}

(54) Title: PATIENT MONITORING, DIAGNOSIS, AND/OR THERAPY SYSTEMS AND METHODS



**WO 2005/028029 A3**

(57) Abstract: Systems and methods for monitoring, diagnosing, and/or treating a patient are provided. One or more individual medical procedures may be utilized to monitor, diagnose and/or treat the patient. Two or more of the individual medical procedures or may be used in combination to provide more comprehensive patient monitoring, diagnosis and/or therapy. One or more functions of two or more individual medical procedures may be used in combination to enhance patient monitoring, diagnosis and/or therapy. The medical procedures may be coordinated. Coordinated medical procedures may involve cooperative operation of two or more of the individual processes. Coordinated medical procedures may also involve cooperative operation of one or more functions of two or more of the individual processes.



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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/030787

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 7 A61N1/362

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A61N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 974 340 A (KADHIRESAN V A) 26 October 1999 (1999-10-26) column 3, line 3 - column 5, line 47 -----	1-33
A	US 2003/023184 A1 (PITTS-CRICK JONATHAN ET AL) 30 January 2003 (2003-01-30) paragraph [0010] - paragraph [0095] -----	1-33
A	US 2003/100925 A1 (HUELSKAMP PAUL J ET AL) 29 May 2003 (2003-05-29) paragraph [0028] - paragraph [0165] -----	1-33

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

1 December 2004

Date of mailing of the international search report

08.07.2005

Name and mailing address of the ISA

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No  
PCT/US2004/030787

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5974340	A 26-10-1999	NONE	
US 2003023184	A1 30-01-2003	NONE	
US 2003100925	A1 29-05-2003	NONE	

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/030787

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:  
**see FURTHER INFORMATION sheet PCT/ISA/210**
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**see additional sheet**

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-33

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.I

Due to the large number of claims directly depending on claim 1 and in view of the extreme length of the description (373 pages) and the multitude of figures (199 pages), a complete search is not possible (Article 17(2)(a)(ii) PCT). Thus, the findings cited in the International Search Report constitute merely a sample of the prior art documents which can be considered highly relevant for assessing novelty and inventive step of the invention.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-33

System comprising and implantable cardiac device, an external respiratory therapy device and a communication channel between the devices  
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2. claim: 34

System for classifying diordered breathing  
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3. claim: 35

System for providing disordered breathing  
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4. claim: 36

A medical system for setecting autonomous arousal events  
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5. claim: 37

A system for characterizing respiration of a patient  
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6. claim: 38

A medical event logbook system  
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7. claim: 39

A respiratory event logbook system  
---

8. claim: 40

A sleep logbook system  
---

9. claim: 41

A system for detecting snoring  
---

10. claim: 42

Posture detection system  
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

11. claim: 43

Medical system with cardiac sensors coupled to respiratory therapy device  
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12. claim: 44

Medical system with breathing sensor and implantable monitoring device  
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13. claim: 45

Medical system with implantable monitoring unit, a processor for feedback information related to breathing therapy provided by a separate entity  
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14. claim: 46

A medical system with a detector system for disordered breathing, a respiratory therapy device and an implantable cardiac therapy device and a therapy controller  
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15. claim: 47

A medical system comprising a respiratory therapy device including a sensor system and a diagnosis unit  
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16. claim: 48

A system for controlling therapy of a non-breathing rhythm related pulmonary disease  
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17. claim: 49

A medical therapy control system comprising an external respiratory device, a cardiopulmonary status processor and a therapy controller  
---

18. claim: 50

A gas therapy system  
---

19. claim: 51

A system for assessing a disease presence  
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

20. claim: 52

A medical system comprising a pulse generator and a control unit  
---

21. claim: 53

A system comprising a data acquisition unit and a therapy delivery system  
---

22. claim: 54

A systm comprising a brain activity sensor and detector, a respiratory or cardiac processor and controller  
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23. claim: 55

A system for detecting sleep related disorders  
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24. claim: 56

A system for evaluating a pathological condition  
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